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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IX

75 Hawthorne Street

San Francisco, CA 94105-3901

FEB - 5 1996

Susan Frankel
Pacific SW Region
USDA Forest Service
630 Sansome Street
San Francisco CA 94111

Dear Ms. Frankel:

The US Environmental Protection Agency (EPA) has reviewed the Draft Environmental Impact Statement (DEIS) for NURSERY PEST MANAGEMENT, PLACERVILLE NURSERY, ELDORADO NATIONAL FOREST, El Dorado County, California. Our comments on the DEIS are provided pursuant to the National Environmental Policy Act (NEPA), Section 309 of the Clean Air Act, and the Council on Environmental Quality's Regulations for Implementing NEPA (40 CFR 1500-1508). We appreciate the individual extension given to EPA by Mr. John Fiske of your office, allowing EPA to provide comments until February 5, 1996.

The project's purpose is to analyze ways to manage pests (weeds, disease, insects) at the Forest Service's Placerville Nursery, located in Camino, California. The DEIS analyzed four alternatives, including "No Action" (Alternative B). The three action alternatives are Alternative A (Full Integrated Pest Management, all methods permitted); Alternative C, No Currently-Registered Soil Fumigants; and Alternative D, No Use of Inorganic Pesticides. The Forest Service's preferred alternative is Alternative A, Integrated Pest Management.

We commend the Forest Service for its effort to develop an Integrated Pest Management (IPM) alternative, and concur with the statement on page S-15 that there are "significant risks" associated with the use of some pesticides, such as the fumigant methyl bromide. In that regard, we strongly recommend that you minimize chemical applications to the maximum extent possible and use them only as a last resort, after all other control methods are determined to be ineffective in terms of pest management.

Under the Clean Water Act (CWA), Federal agencies are required to comply with applicable State water pollution control requirements to the same extent as any private party. The Basin Plan developed by the Regional Water Quality Control Board (approved by EPA under authority of the CWA) contains a number of specific requirements on toxicity and pesticides. We are concerned that the DEIS did not discuss the need to ensure the project's consistency with the applicable Basin Plan.

FEB - 5 1986

We have therefore rated the DEIS as EC-2, Environmental Concerns - Insufficient Information. Please refer to the attached "Summary of Rating Definitions and Follow-Up Action" for a more detailed explanation of EPA's rating system and to the attached comments for a more detailed explanation of our concerns.

We appreciate the opportunity to comment on the DEIS. Please send two copies of the Final Environmental Impact Statement and Record of Decision (FEIS/ROD) to my attention at the letterhead address (code: E-3) when the document is filed with EPA's Washington, D.C. office. If you have any questions, please call me at 415-744-1584 or David Tomsovic of my staff at 415-744-1569.

Sincerely,



David Farrel, Chief
Office of Federal Activities

Enclosures: 4

- (a) EPA rating sheet for DEISS
- (b) Detailed comments
- (c) Questions & answers on methyl bromide
- (d) Pollution prevention checklist

M.I. #2593

cc: Mr. William Crooks, RWQCB
3443 Routier Road, suite A, Sacramento CA 95827

SUMMARY OF RATING DEFINITIONS AND FOLLOW-UP ACTION

Environmental Impact of the Action

LO-Lack of Objections

The EPA review has not identified any potential environmental impacts requiring substantive changes to the proposal. The review may have disclosed opportunities for application of mitigation measures that could be accomplished with no more than minor changes to the proposal.

EC-Environmental Concerns

The EPA review has identified environmental impacts that should be avoided in order to fully protect the environment. Corrective measures may require changes to the preferred alternative or application of mitigation measures that can reduce the environmental impact. EPA would like to work with the lead agency to reduce these impacts.

EO-Environmental Objections

The EPA review has identified significant environmental impacts that must be avoided in order to provide adequate protection for the environment. Corrective measures may require substantial changes to the preferred alternative or consideration of some other project alternative (including the no action alternative or a new alternative). EPA intends to work with the lead agency to reduce these impacts.

EU-Environmentally Unsatisfactory

The EPA review has identified adverse environmental impacts that are of sufficient magnitude that they are unsatisfactory from the standpoint of environmental quality, public health or welfare. EPA intends to work with the lead agency to reduce these impacts. If the potential unsatisfactory impacts are not corrected at the final EIS stage, this proposal will be recommend for referral to the Council on Environmental Quality (CEQ).

Adequacy of the Impact Statement

Category 1-Adequate

EPA believes the draft EIS adequately sets forth the environmental impact(s) of the preferred alternative and those of the alternatives reasonably available to the project or action. No further analysis or data collection is necessary, but the reviewer may suggest the addition of clarifying language or information.

Category 2-Insufficient Information

The draft EIS does not contain sufficient information for EPA to fully assess environmental impacts that should be avoided in order to fully protect the environment, or the EPA reviewer has identified new reasonably available alternatives that are within the spectrum of alternatives analyzed in the draft EIS, which could reduce the environmental impacts of the action. The identified additional information, data, analyses, or discussion should be included in the final EIS.

Category 3-Inadequate

EPA does not believe that the draft EIS adequately assesses potentially significant environmental impacts of the action, or the EPA reviewer has identified new, reasonably available alternatives that are outside of the spectrum of alternatives analyzed in the draft EIS, which should be analyzed in order to reduce the potentially significant environmental impacts. EPA believes that the identified additional information, data, analyses, or discussions are of such a magnitude that they should have full public review at a draft stage. EPA does not believe that the draft EIS is adequate for the purposes of the NEPA and/or Section 309 review, and thus should be formally revised and made available for public comment in a supplemental or revised draft EIS. On the basis of the potential significant impacts involved, this proposal could be a candidate for referral to the CEQ.

*From: EPA Manual 1640, "Policy and Procedures for the Review of Federal Actions Impacting the Environment."

FEB - 5 1996

I) PESTICIDES

ISSUE: The Draft Environmental Impact Statement (DEIS) misstates current Federal law on the use of methyl bromide after January 1, 2001.

DISCUSSION: We note that the DEIS contains a misstatement concerning the use of methyl bromide under Federal law after January 1, 2001. Page S-11 states that use of methyl bromide "is scheduled to be phased out by January 1, 2001, in accordance to a final US [EPA] rule." In fact, under authority of the Clean Air Act, EPA has prohibited production and importation of methyl bromide after January 1, 2001 (December 10, 1993 Federal Register at p. 65018). The Forest Service should recognize that the phaseout applies to chemical production and imports, not use. As of this time, existing methyl bromide stocks may be used until such time as the stock is exhausted, which may be sometime after January 1, 2001. Please refer to questions three and four of the attached Questions & Answers on Methyl Bromide.

RECOMMENDATION: The Final Environmental Impact Statement (FEIS) should note that the production and importation of methyl bromide is prohibited after January 1, 2001, but that as of now current stocks may still be used.

ISSUE: The DEIS did not reflect Federal requirements concerning the use of safe alternatives (to methyl bromide) to the maximum extent practicable.

DISCUSSION: Under EPA regulations, methyl bromide is a class I controlled substance, regulated under the Clean Air Act (CAA). 40 CFR 82.80 requires that Federal agencies adopt regulations that conform to the policies and requirements of CAA Title VI. 40 CFR 82.84 stipulates that the procurement regulations of each Federal agency provide that, "...in place of class I or class II substances, or of products made with or containing such substances, safe alternatives identified under 42 U.S.C. 7671K...shall be substituted to the maximum extent practicable." (underline added). It is unclear from reading the DEIS whether the Forest Service has in fact substituted safe alternatives to use of methyl bromide or other class I or class II controlled substances to the "maximum extent practicable."

RECOMMENDATION: We recommend that the FEIS clearly discuss whether the proposed project has considered the use of safe alternatives to the maximum extent practicable, as opposed to use of class I or class II controlled substances. The Record of Decision (ROD) should include appropriate commitments in this regard.

ISSUE: The DEIS does not discuss what substitutes will be employed by the Forest Service after its current stock of methyl bromide runs out.

DISCUSSION: Throughout the DEIS there is discussion that the nursery would become economically unviable if the use of methyl bromide were not allowed. The reader gets the impression that future viability of the nursery is very dependent on methyl bromide. However, as noted above, sometime after January 1, 2001 methyl bromide will no longer be an option for the Forest Service (i.e., once the stock is gone). However, now is the time that the Forest Service should plan for future pest management without relying on methyl bromide.

RECOMMENDATION: We recommend that the FEIS discuss what alternatives (both chemical and nonchemical) the Forest Service may turn to following its exhaustion of methyl bromide stocks. As noted in EPA's notice of final rulemaking (December 10, 1993 Federal Register, p. 65039), "Among the existing chemical pesticides that can replace methyl bromide, the methyl isothiocyanate (MIT) generators (Metam Sodium and Dazomet), and 1,3-dichloropropene (1,3-D, Telone) have the greatest potential to manage pests currently controlled by methyl bromide." Additionally, other methods may also come to play a larger role following the end of methyl bromide use, particularly nonchemical alternatives such as biological control agents, cultural practices and the use of steam.

II) WATER QUALITY

ISSUE: The DEIS does not specifically reference the need for the Forest Service to comply with applicable pesticide and toxicity requirements in the approved Water Quality Control Plan ("Basin Plan") for the Sacramento River and San Joaquin River Basins.

DISCUSSION: The DEIS (pp. II-13, II-14 and II-15) outlines the regulatory procedures which the Forest Service intends to follow in terms of pesticide use. Page II-13 indicates strict adherence to "all applicable local, State, and Federal laws..." However, we found no discussion regarding the need for the project to comply with the Basin Plan. For example, the water quality objectives portion of the Basin Plan (dated December 9, 1994) addresses a number of pollutants (including pesticides) as well as toxicity. The Basin Plan has seven requirements regarding use of pesticides, specifically:

1. No individual pesticide or combination of pesticides shall be present in concentrations that adversely affect beneficial uses.
2. Discharges shall not result in pesticide concentrations in bottom sediments or aquatic life that adversely affect beneficial uses.

3. Total identifiable persistent chlorinated hydrocarbon pesticides shall not be present in the water column at concentrations detectable within the accuracy of analytic methods approved by EPA or the Regional Water Quality Control Board.
4. Pesticide concentrations shall not exceed those allowed by applicable antidegradation policies.
5. Pesticide concentrations shall not exceed the lowest levels technically and economically achievable.
6. Waters designated for use as a domestic or municipal drinking water supply shall not contain pesticide concentrations in excess of the Maximum Contaminant Levels set forth in the California Code of Regulations, Title 22.
7. Waters designated for use as domestic or municipal domestic drinking water supply shall not contain concentrations of thiobencarb in excess of 1.0 ug/l.

CWA Section 313 provides that Federal agencies with jurisdiction over a property or facility or engaged in any activity resulting, or which may result, in the discharge or runoff of pollutants "shall be subject to, and comply with, all Federal, State...and local requirements...respecting the control and abatement of water pollution in the same manner, and to the same extent as any nongovernmental entity..."

RECOMMENDATION: We recommend that the FEIS/ROD discuss whether the proposed project has any implication for the seven requirements above. In particular, the FEIS should clearly indicate those instances where Forest Service activities under this EIS would be inconsistent with any requirement in the Basin Plan. If that is the case, the FEIS/ROD should discuss how the Forest Service will comply with the Basin Plan's pesticide and toxicity requirements.

III) POLLUTION PREVENTION

ISSUE: The DEIS does not specifically recognize the guidance memorandum issued by the Council on Environmental Quality (CEQ) on incorporating pollution prevention techniques and mechanisms in Federal agency NEPA documents.

DISCUSSION: The CEQ's guidance memorandum for Federal agencies was published in the January 29, 1993 Federal Register at pp. 6478-6481. The CEQ adopted a very broad definition of pollution prevention in this guidance document. For your reference I've enclosed a four-page pollution prevention checklist on pest management found in EPA's POLLUTION PREVENTION/ENVIRONMENTAL IMPACT REDUCTION CHECKLISTS (January 1995).

FEB - 5 1996

RECOMMENDATION: Although a number of the pollution prevention areas in the pest management checklist are included in the DEIS (including an Integrated Pest Management alternative), the checklist also has other measures which the Forest Service should consider as it carries out the project. Appropriate pollution prevention commitments should be reflected in the FEIS/ROD.

IV) EDITORIAL COMMENTS

We recommend more careful editing of the document. Two examples from the DEIS help to convey this point. Page S-17 contains a sentence that does not make sense: "Weeding at done by Forest Service and contracted personnel." Page S-18 contains a sentence which remains unfinished: "Alternative A would meet production level objectives, but Alternatives B or D."



Questions & Answers on METHYL BROMIDE

1. **Q: What is methyl bromide? What is it used for?**
A: Methyl bromide is a broad spectrum pesticide which is used as a fumigant in the control of pest insects, nematodes, weeds, pathogens, and rodents. In North America (41% of world use), it is used for soil fumigation (87%), commodity and quarantine treatment (8%), and structural fumigation (5%). In the U.S., most of the methyl bromide is used in the production of tomatoes and strawberries.
2. **Q: Why has EPA taken action on a pesticide under the Clean Air Act?**
A: Methyl Bromide is an ozone depleting substance (ODS). Recent scientific evidence estimates that bromine from this material is 50 times more effective at destroying ozone than chlorine from CFCs on a per atom basis. The ozone-depletion potential (ODP) of this material has been assessed to be 0.6 by the 1994 Science Assessment of Ozone Depletion, a document prepared by more than 250 of the world's leading atmospheric scientists. The Clean Air Act requires that any substance ODP of 0.2 or greater be listed as class I substances, and be phased out in the United States within seven years.
3. **Q: When will methyl bromide be banned?**
A: Under the authority of the Clean Air Act, the EPA has prohibited the production and import of methyl bromide after January 1, 2001 (December 10, 1993 - 58 FR 65018). In addition, EPA has frozen U.S. production in 1994 at 1991 levels. EPA has allowed the longest possible time before a phase-out in order to facilitate the smoothest possible transition to alternatives.
4. **Q: Does this restrict the use of methyl bromide before or after 2001?**
A: No. The phaseout applies to chemical production and imports, not use.
5. **Q: Do products grown with or treated with methyl bromide have to be labeled as contributing to depletion of the ozone layer as is the case with other ozone depleting compounds?**
A: No. EPA has exempted agricultural products from labeling (58 FR 65043).
6. **Q: What about alternatives?**
A: This depends upon the specific crop and target pest. There is no one alternative for all of the uses of methyl bromide, but there are a number of pest control tools which can manage pests currently controlled with methyl bromide. Viable alternative materials need not be identical to methyl bromide, but must effectively and economically manage those pests which are now being controlled by methyl bromide. Numerous chemical and nonchemical pesticides exist today which effectively control many of the pests on which methyl bromide is used. In addition, research on additional alternatives is underway and will likely result in a wide range of options, depending on the use of methyl bromide. While economic disparities may occur in the short-term, alternatives will likely be viable in the long-term.
7. **Q: What about specific alternatives for the uses of methyl bromide?**
A: The following alternatives to methyl bromide are often pest specific, and can reduce economic pest levels when used as part of an overall integrated pest management program. While not all of the alternatives listed here are ready to be used by the agricultural industry, all have shown a very good potential to control pests currently controlled by methyl bromide, and are expected to be in place and available by or before 2001. SOIL: Chemical alternatives include 1,3-dichloropropene, dazomet, chloropicrin, and metam sodium, as well as selective contact insecticides and herbicides. Nonchemical alternatives include crop

rotation, organic amendments, steam, solar heating, biological control agents, cultural practices, and plant breeding. COMMODITY: Chemical alternatives include phosphine and carbonyl sulfide. Nonchemical alternatives include irradiation, controlled atmospheres utilizing nitrogen and carbon dioxide, & heat/cold. STRUCTURAL: Chemical alternatives include sulfuryl fluoride and phosphine, as well as contact insecticides and rodenticides. Nonchemical alternatives include controlled atmospheres utilizing nitrogen and carbon dioxide, & heat/cold.

8. **Q: Does EPA understand how important a pesticide like methyl bromide is to modern agricultural production?**

A: EPA recognizes the importance of a pesticide like methyl bromide to the agricultural community, and will strive to minimize the effect of actions on this chemical required under the Clean Air Act. EPA is working closely with the U.S. agricultural community on research into materials which fit the pest management needs now being addressed by methyl bromide. In this regard, both EPA and USDA are working with scientists and farmers to insure that economically viable and environmentally sound alternatives are in place by the phase out date of 2001.

9. **Q: I have heard that the ozone depletion potential (ODP) of this chemical is very uncertain, and will soon drop below 0.2. Is this true?**

A: While some uncertainties remain concerning the exact magnitude of methyl bromide's role in ozone depletion, the 1994 Science Assessment has calculated the ODP to be 0.6, and reports that "An uncertainty analysis suggests that the ODP is unlikely to be less than 0.3.", and states that "Methyl bromide continues to be viewed as a significant ozone-depleting compound." Additional research is ongoing to address outstanding uncertainties, and to define the precise ODP, which may turn out to be slightly higher or lower than 0.6.

10. **Q: How much methyl bromide is produced by human activities, as compared to natural sources?**

A: The 1994 Science Assessment reports that methyl bromide is produced by:

- 1) agriculture: 20-60 kilotons/year,
- 2) biomass burning: 10-50 kt/yr,
- 3) leaded gasoline burning: 0.5-22 kt/yr,
- and 4) oceans: 60-160 kt/yr (0-40 kt/yr,

Butler, 1995). The amount of methyl bromide produced by agricultural sources is enough to have considerable impact on the stratospheric ozone layer, disrupting the natural balance of the atmosphere, and increasing the amount of hazardous radiation that reaches the earth.

11. **Q: Is methyl bromide regulated in other countries besides the United States?**

A: Yes. The Netherlands phased out the use of methyl bromide for soil fumigation in 1992 because of ground water concerns. Denmark and other Nordic countries will ban agricultural use of methyl bromide in 1998, and Sweden is expected to follow a similar schedule. The European Union and Canada will cut agricultural use by 25% in 1998. A number of other countries are now contemplating regulatory action for methyl bromide use and production.

12. **Q: What is the Montreal Protocol? What does it have to do with methyl bromide?**

A: The Montreal Protocol is an International Treaty (signed by more than 150 countries) which governs the production and trade of ozone depleting substances (ODS). This Treaty is now in the process of phasing out CFCs and other ODS on a worldwide basis. In 1992, the Parties to the Montreal Protocol considered the science on methyl bromide, and set an ozone depletion potential (ODP) of 0.7, and froze production in 1995 at 1991 levels. In late 1995, the Montreal Protocol will consider additional controls for methyl bromide.

13. **Q: What about the potential of trade disparities if methyl bromide is phased out in the United States and not in other areas of the world?**

A: The Montreal Protocol provides for an effective means of creating a level playing field by harmonizing regulations on a global basis.

14. **For more information, contact:**
Ozone Protection HOTLINE: (800) 296-1996
Methyl Bromide World Wide Web Home Page:
<http://www.epa.gov/docs/ozone/mbr/mbrqqa.html>

Bill Thomas
U.S. EPA - 6205J
401 M Street S.W.
Washington, DC 20460
TEL: 202-233-9179
FAX: 202-233-9577
E-MAIL: thomas.bill@epamail.epa.gov

POLLUTION PREVENTION/ENVIRONMENTAL IMPACT REDUCTION CHECKLIST FOR PEST MANAGEMENT

How Can Pest Management Affect the Environment?

Pest management is often necessary to protect lawns, trees, shrubs, and crops from weeds, diseases, insects, and other animals. Pest management may also be used to control pest populations inside buildings and other structures. However, the same characteristics that make chemical pesticides effective in the control of pests often present risk of injury to humans, as well as non-target animals and plants. These characteristics also create the possibility of general environmental contamination. For the purposes of this checklist, the environmental impacts of pest management requirements will be evaluated on the basis of minimizing acute and chronic risks to populations onsite and downstream from the evaluated area. The selection of pest management techniques is directly related to pest, host, site, and state of development.

There are a large number of pest management techniques: cultural change, plant selection, exclusion, physical removal, repellents, biologics, conservation and augmentation of natural predators, and chemical pesticide application. New projects must be planned to minimize the need for chemical controls. All pest management methods, including chemical pesticides, may be used as part of a pest management program to control weed, disease, insect, and other animal damage to lawns, trees, shrubs, and crops. Chemicals may be required in managing structural pests, as well as controlling human and animal disease vectors. Potential side effects of the use of chemical pesticide products can include contamination of surface and groundwater, as well as negative impacts on human health and safety. Some pesticides are toxic in small quantities to humans and animals. While many pesticides break down in a few months, others may persist in the environment over time under certain conditions. For the purposes of this checklist, the term "pesticide" refers to herbicides, fungicides, germicides, insecticides, and other substances or mixtures that are used to prevent, destroy, repel, or mitigate any pest.

What Questions Should Be Asked To Ensure That These Effects Are Minimized or Eliminated?

On April 26, 1994, President Clinton signed a Presidential Memorandum calling for the establishment of guidelines for Federal facility managers on how to reduce the use of chemical fertilizers and pesticides. The memorandum also discussed the development of guidelines for other environmentally preferable landscaping practices. These guidelines will be proposed by a Federal interagency workgroup established by the Federal Environmental Executive. The following questions address the some of the concepts delineated in the Presidential Memorandum, as well as additional opportunities to prevent pollution and reduce waste generation associated with pest management.

General Concerns. Chemical pesticides are used as a part of pest management programs in the maintenance of lawns, crops, trees, shrubs, and structures. For many pests, alternatives to the use of traditional chemical products are available that are equally effective and are cost-competitive with chemical control methods.

- Will an Integrated Pest Management (IPM) program be implemented and supported with continuing personnel training? Facilities should consider implementing IPM programs to combine cultural, biological, and chemical techniques to control pests and minimize the use of toxic/leachable pesticide products. IPM practices can reduce the risk of exposure to chemical pesticides both on-site and in the general environment.
- Has the plan identified facility or project access to expertise in Integrated Pest Management?

- Will project construction, operation, and/or maintenance require the use of chemical pesticides as a part of a pest management program?
- Will the need for chemical pesticides be reduced through careful selection of pest resistant vegetation, plant and hardware selection to minimize requirements for irrigation, best mowing practices, and planned elimination of pest habitats (e.g., standing water that may attract mosquitoes, cracks and crevices in structures that will admit and harbor cockroaches)? It is important to consider the ecosystem and the compatibility of introduced chemicals with wildlife, including predators and beneficial insects.
- Are there less toxic pesticide alternatives? Local agriculture extension agencies, Master Gardener clubs, and lawn and landscape product suppliers often have information about best management practices (BMPs). For example, they will recommend the use of cultural and biologic strategies to avoid the use of chemical pesticides.
- Will the facility design and operation accommodate pest management practices that are less susceptible to offsite transport of chemicals, such as pesticides and fertilizers (thereby reducing the potential for groundwater contamination)?
- Will less persistent pesticides be identified and used only when needed, in spot application to specific targets, and at minimum required application levels?

Material Storage, Handling, and Use Concerns. The storage, handling, and use of pesticides can lead to environmental degradation through the interaction of incompatible chemicals due to improper storage, expiration of materials (which subsequently become wastes), spills and other uncontrolled releases, employee exposure to toxic chemicals, and pesticide runoff into environmentally sensitive areas.

- Will precautions be taken to purchase only as much pesticide as will be needed for a season and limit the amount of pesticides purchased? Unused or mishandled pesticides may expire and need to be handled as waste (certain waste pesticide mixes are considered hazardous). Some leftover pesticides may, however, be used the following year if properly stored. Containers should be sealed or closed and kept in a dry, well-ventilated area that is locked to prevent unauthorized and child access. All containers storing pesticides should be clearly labeled with product name and all U.S. EPA and locally required information, including hazards and expiration dates.
- Will employees be trained in the proper storage, handling, and disposal of pesticides? Employees should be instructed on how to maintain pesticide supplies properly and to wear protective equipment when working with pesticides to limit exposure.
- Will the facility use safe pesticide mixing techniques? Safe mixing techniques include ensuring that pesticides are mixed in clear and open areas that can be easily cleaned and avoiding mixing upstream from waterbodies (including drains leading to surface water bodies and groundwater aquifers). Other techniques include mixing the least amount of pesticide possible and using closed mixing systems that reduce the potential for release and exposure.

* Indicates an environmental impact reduction opportunity.

- Does the facility have a pesticide spill prevention and control plan? Pesticide spill prevention and control plans should be prepared to teach employees how to prevent spills. These plans should be kept onsite for employee reference should a spill occur.
- Will precautions be taken to minimize the amount of pesticide mixed and applied? Facilities should have a program to ensure that employees are aware of when, where, and how much pesticide is necessary for a given pest control situation. The program should also provide employees with training in how to apply pesticides, requirements for posting and notification, methods to reduce application overlapping, and instruction to avoid exceeding recommended application rates.
- Will the facility ensure that pesticides are applied only under the optimal weather conditions (e.g., not spraying on windy days and just before or after heavy rainfall)?
- Does the facility pesticide application program require the use of techniques to minimize the amount of pesticide applied? These techniques include using applicators (e.g., proper orifice spray nozzles at the correct pressure) to minimize the amount of pesticide needed to treat a given area and control pesticide droplet size and deposition, as well as following correct application timing and sequencing procedures.
- Will the facility employ techniques to reduce pesticide runoff? Pesticide runoff and leachate can negatively affect groundwater and surface waters and can be reduced by practicing spot application whenever possible, using row banding application techniques to limit the amount of pesticides applied, using contact pesticides that do not have to be incorporated into the sod, and not spraying in potentially sensitive areas.
- Will measures be taken to minimize/eliminate the effects of pesticides on non-target species, such as local, resident-wildlife and beneficial-insects? *

Pesticide Application Residuals Concerns. The potential for pesticide application activities to affect the environment does not end after a pesticide has been applied. The residuals resulting from the use of pesticides, such as wastewater and empty pesticide containers, must be properly managed to ensure that the environment is not negatively affected.

- Will the facility minimize the number of pesticide containers requiring disposal? Options to reduce the volume of this waste stream include purchasing products in bulk, refillable or returnable containers, and products with water soluble packaging.
- Will all empty pesticide containers be triple-rinsed and disposed of properly? Federal regulations require rinsing empty pesticide containers at least three times before disposal. Pesticide containers must not be buried or burned, even after triple-rinsing. Rinsed containers can be disposed of at a sanitary landfill or often may be returned to the supplier for reuse. Reusable containers reduce the need for rinsing and disposal. *
- Will the facility properly manage pesticide rinse waters? Pesticide-contaminated rinse waters can be used in future pesticide mixing and application as an alternative to disposal, or can be applied in onsite landscape applications. *

* Indicates an environmental impact reduction opportunity.

Other References

North Carolina Agriculture Extension Service. Series of Fact Sheets on Pollution Prevention Opportunities and Safe Pesticide Management. (Available through the Pollution Prevention Information Clearinghouse (PPIC), Tel No. 202/260-1023.

Presidential Memorandum on guidelines for Federal facility managers on reducing chemical fertilizer and pesticide use, signed by President Clinton on April 26, 1994.

U.S. EPA, Office of Pesticides and Toxic Substances. July 1992. "Urban Integrated Pest Management: A Guide for Commercial Applicators." EPA 735-B-92-001.

U.S. EPA, Office of Pesticide Programs. March 1989. "Recognition and Management of Pesticide Poisonings." EPA-540/9-88-001.

U.S. EPA, Risk Reduction Engineering Laboratory. July 1993. "Guides to Pollution Prevention: Non-Agricultural Pesticide Users." EPA/625/625/R-93/009.

